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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,733	12/05/2003	Eric M. Rohrbaugh	2507-6021US (22029-US)	1717

60794 7590 07/19/2006

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EXAMINER

RODRIGUEZ, WILLIAM H

ART UNIT

PAPER NUMBER

3746

DATE MAILED: 07/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/728,733	Applicant(s) ROHRBAUGH ET AL.	
	Examiner William H. Rodriguez	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-18,20-35,40,42,43 and 45-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 50 and 51 is/are allowed.
- 6) ☒ Claim(s) 1,3-6,22,25,26,28,29,31,33,34,42,43 and 45 is/are rejected.
- 7) ☒ Claim(s) 7-18,20,21,23,24,27,30,32,35,40 and 46-49 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is in response to the amendment and remarks filed 5/11/06. Since the examiner has applied new grounds of rejection, this office action is being made non-final to afford the applicant the opportunity to respond to the new grounds of rejection. Moreover, examiner has withdrawn the restriction requirement of 4/4/05 and 5/13/05 in view of applicant's amendment to the independent claims 1 and 42 which no recite substantially similar subject matter to restricted independent claims 25 and 29. Thus, claims 1, 3-18, 20-35, 40, 42, 43, 45-51 are being examined. Claims 2, 19, 36-39, 41 and 44 have been cancelled by applicant.

In view of the above noted withdrawal of the restriction requirement as to the linked species/inventions, applicant(s) are advised that if any claim(s) depending from or including all the limitations of the allowable generic linking claim(s) be presented in a continuation or divisional application, such claims may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Once a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 44 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

Claim Objections

1. Claim 22 is objected to because of the following informalities:

Claim 22 depends from cancelled claim 2. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 40 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 40 recites the limitation "...by combustion of **a solid propellant**" in line 9. It is unclear if by this recitation applicant is referring back to **the first solid pulse grain** or the **another solid pulse grain** propellant disposed within the pressure vessel (see lines 3 and 5 respectively). Is the **solid propellant** a different propellant from the already positively recited **first solid pulse grain** and the at least **another solid pulse grain**? Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3-6, 22, 25, 26, 28, 29, 31, 33, 34, 42, 43 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by **Denoel et al. (US 5,765,367)**.

Denoel teaches a propulsion system, comprising: a pressure vessel containing a solid propellant 14; an igniter (not shown but inherent in order to start combustion of the propellant) for igniting said solid propellant, an axial thrust valve 40 in communication with the pressure

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vessel and configured for selectively releasing gases generated by combustion of the solid propellant within the pressure vessel to directly provide axial thrust; at least one maneuver control nozzle 32_1, 32_2 and 32_3 having a maneuver control valves 34_1, 34_2 and 34_3 respectively for selectively releasing gases (cl. 2 ll. 38-40) generated by combustion of the propellant within the pressure vessel to provide thrust for maneuvering. When the solid propellant is ignited axial thrust valve 40 is fully opened to directly provide axial thrust and simultaneously at least one maneuver control valves 34_1, 34_2 or 34_3 is opened to rapidly depressurize the pressure vessel (if none of the maneuver control valves 34_1, 34_2 or 34_3 is simultaneously opened, extremely high pressures will build up inside the pressure vessel and the propulsion device will explode). While the axial thrust valve 40 and simultaneously at least one of the maneuver control valves 34_1, 34_2 or 34_3 are opened the solid propellant is being combusted rapidly. Therefore, **Denoel** does teach that the axial thrust valve 40 and at least one of the plurality of maneuver valves 34_1, 34_2 and 34_3 are sized to effect rapid depressurization of the pressure vessel during combustion of the solid propellant charge to terminate combustion thereof when the axial thrust valve 40 and the plurality of maneuver control valves 34 are opened. If the maneuver control valves 34 are not opened and the solid propellant is being combusted, extremely high pressures are going to build up inside the pressure vessel and if this high pressure is not release, the propulsion device will explode. Thus, it is inherent that once combustion of the solid propellant takes place, the axial trust valve 40 and at least one of the maneuver control valves 34 are operable in combination for simultaneous opening to reduce pressure within the vessel to a degree sufficient to terminate combustion of the solid propellant. See **Figures 1 and 2** of Denoel.

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6. Claims 25, 26 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by **Goddard et al. (US 5,062,593)**.

Goddard teaches a propulsion system, comprising: a pressure vessel containing a solid propellant 13; an igniter 27 for igniting said solid propellant, a plurality of valves 16 in fluid communication with the pressure vessel. When the solid propellant 13 is ignited the valves 16 are opened to rapidly depressurize the pressure vessel (if none of the plurality of valves is simultaneously opened, extremely high pressures will build up inside the pressure vessel and the propulsion device will explode). While the valve 30 and simultaneously at least one of the plurality of valves 16 are opened the solid propellant is being combusted rapidly. Therefore, **Goddard** does teach that the valve 30 and at least one of the plurality of maneuver valves 16 are sized to effect rapid depressurization of the pressure vessel during combustion of the solid propellant charge to terminate combustion thereof when the valve 30 and the plurality of valves 16 are opened. If the plurality of valves 16 are not opened and the solid propellant is being combusted, extremely high pressures are going to build up inside the pressure vessel and if this high pressure is not release, the propulsion device will explode. Thus, it is inherent that once combustion of the solid propellant 13 takes place, the valve 30 and at least one of the valves 16 are operable in combination for simultaneous opening to reduce pressure within the vessel to a degree sufficient to terminate combustion of the solid propellant. See **Figures 1 and 3**.

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Allowable Subject Matter

7. Claims 7-18, 20, 21, 23, 24, 27, 30, 32, 35, 46-49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claim 40 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

9. Claims 50 and 51 are allowed. New claims 50 and 51 include the allowable subject matter of claims 24 and 46 respectively.

Response to Arguments

10. Applicant's arguments with respect to claims 1, 3-6, 22, 25, 26, 28, 29, 31, 33, 34, 42, 43 and 45 have been considered but are moot in view of the new ground(s) of rejection. See detailed rejections above.

Contact information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Rodríguez whose telephone number is 571-272-4831. The examiner can normally be reached on Monday-Friday 7:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy S. Thorpe can be reached on 571-272-4444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 7/13/06

William H. Rodríguez
Primary Examiner
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